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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,969	03/31/2004	Jean-Michel Franchet	251003US41	4877
22850	7590	07/05/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			ABOAGYE, MICHAEL	
			ART UNIT	PAPER NUMBER
			1725	
			NOTIFICATION DATE	DELIVERY MODE
			07/05/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/812,969	<b>Applicant(s)</b> FRANCHET ET AL.	
	<b>Examiner</b> Michael Aboagye	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4-6, 8, 9, 11, 14, 16, and 18- 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Buldhaupt et al. (US Patent No. 5,994,66).

Buldhaupt et al. teaches a method of fabricating a hollow mechanical part by diffusion welding and superplastic forming by providing at least two primary parts of superplastic material, said primary parts having two faces and a periphery (see sheets "44,46", figure 2); forming a pattern of an anti-diffusion or a stop-off material on at least one face of said two faces of said primary parts (column 3, lines 25-30) (note stop-off material is accurately placed in areas where the primary parts are not intended to bond together, therefore, said placement is done in a predetermined pattern). Placing the sheets (44,46) in a vertical stack, with the stop-off coated surface of the one sheet facing the other sheet; applying laser weld head to press the primary core sheets together and laser-welds; wherein the laser travels through the stop-off material; wherein the laser is moved in a predetermined path by a computer-controlled (CNC) drive system in the presence of argon (column 6 lines 53-67). Said anti-diffusion material comprises boron nitride which is mixed with water and sprayed on at least on of

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the sheets; assembly the parts into a stack, defining a cavity, diffusion welding the stack, placing the welded assembly into a mold and superplastically forming a blank (figures 2, 4 6A, column 5 line 66 – column 7 line 33, column 8 lines 49- column 9 line 65); wherein the stack is cleaned before diffusion bonding under isostatic pressure (column 3, line 60- column 4, line 8 and column 9, lines 22-29). (Note the examiner believes that while the laser head traverses said\ linear weld paths through the stop-off material to bond the sheets (44,46), the radiant heat will necessarily heat the stop-off material within the heat affected zone (HAZ) and apparently cause localized sintering or consolidation, while the stop-off material remains unmelted );

Regarding claims 16, 18 and 20, Buldhaupt et al. teaches the laser application step before the diffusion bonding of the stack under isostatic pressure (column 3, lines 60-column 4, line 40, and column 8, line 63-column 9, line 29)

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 12 , 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buldhaupt et al. (US Patent No. 5,994,66).as applied to claim 1 above.

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Buldhaupt et al. teaches a cleaning step which removes oxides and residues which will interfere with the bonding process(column 3, line 60- column 4, line 8 and column 9, lines 22-29), but does not expressly mention brushing to remove excess anti-diffusion bonding material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to wash or clean to remove excess boron nitride since this process is an obvious substitute of brushing which allows easy removal of oxides and residues to facilitate rapid formation of a strong bond during the diffusion bonding step. (Buldhaupt et al., column 9, lines 22-29). (Note the examiner interprets an excess stop-off material as a residue).

5. Claims 3, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 5,994,66) as applied to claim 1 above and further in view of Sanders (US 2002/0179688 A1) and Weisert et al. (USPN 4220276).

Buldhaupt et al. does not expressly teach stop-off material made of yttria, forming a turbine blade nor brushing to remove excess material.

Sanders teaches a stop-off material made of either boron nitride or yttria (paragraph 31) as alternative anti-diffusion materials in a conventional diffusion bonding/ superplastic forming process (paragraphs 31-37) used to form turbine blades (paragraph 42). It would have been obvious to one of ordinary skill in the art to use yttria as a stop-off material in the method of Buldhaupt et al. as taught by Sanders since yttria

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is an obvious variant of stop-off materials used in diffusion bonding (Sanders, paragraphs 31-37).

Buldhaupt et al. and Sanders do not expressly teach the grain size of the yttria powder.

However Weisert teaches anti-diffusion made of yttria having a particle size of approximately 10 microns, which is highly sinterable and also allow parts to be formed under diffusion bonding with sound bond integrity (abstract and column 3, lines column 32-65 and column 4, lines 37-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a yttria anti-diffusion material having a particle size of approximately 10 microns in the method of Buldhaupt et al. as modified by Sanders in view of the teachings of Weisert in order to form parts under diffusion bonding with sound bond integrity (Weisert, abstract and column 3, lines column 32-65 and column 4, lines 37-50).

### ***Response to Arguments***

6. The examiner acknowledges the applicants' remarks/arguments received by the USPTO on May 14 2007. Claims 1-22 are currently under consideration in the application.

7. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

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**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kistner et al. (US 6,810,572) is also cited in PTO -892.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonahan Johnson can be reached on 571-272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM

  
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SPEA 41725

  
Michael Aboagye  
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06/21/2007